GOVERNMENT OF
NEWFOUNDLAND
AND LABRADOR

OILFIELD DEVELOPMENTS IN THE NEWFOUNDLAND OFFSHORE – BEYOND HIBERNIA

A Position Paper

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FIELD DEVELOPMENTS IN THE NEWFOUNDLAND OFFSHORE - BEYOND HIBERNIA

Over one billion barrels of recoverable light crude oil is probably contained in eight discoveries outside of the Hibernia significant discovery area. An additional eight billion barrels is thought to exist in other areas of the Newfoundland offshore. The combined potential (at an average expectation) according to the 1983 Geological Survey of Canada Report, "Oil and Natural Gas Resources of Canada" is ten billion barrels. These numbers exceed the total conventional light oil reserves discovered to date within the rest of Canada and as such represent a tremendous opportunity to offset the light crude oil shortages predicted by the National Energy Board for the mid 1990's. As reserves discovered per well and reserve additions of light and medium gravity oil continue to decline in the Western Canadian Sedimentary Basin, we have to turn our serious attention toward the frontiers, with a focus on preparing these areas for a productive contribution as a future secure source of supply. To do otherwise will result in increased dependence in the future upon foreign sources of supply.

Unfortunately the potential reserve base within the Newfoundland offshore outside of the Hibernia Field remains that -- a potential reserve base. Further delineation of these other existing discoveries is required before that potential can be translated firstly into real reserves and secondly into production. Recent industry and government studies indicate that the supply cost of producing oil from either of the smaller eight discoveries noted above is competitive in the general context of Canadian frontier development. As a consequence it may be stated that one of Canada's better chances for offsetting the predicted light oil domestic supply shortage in the 1990's lies in development of these eight smaller fields because of their resource potential and the cost effective nature of these types of development.

The eight fields under consideration are Terra Nova, Whiterose, North Ben Nevis, Hebron, Ben Nevis, Fortune, South Tempest and Nautilus (See Attached Figure). The latter three are one-well discoveries, while Terra Nova is the most extensively delineated of the remainder. Additional delineation or stepout drilling is required in order to ascertain with confidence the true resource base of these discoveries. This is where our focus must be concentrated in terms of drilling activity, in the near term.

The recent NEB report concludes that in its low oil price case ($18 U.S./Barrel by 1992) conventional domestic crude supply will continue to decline and substantial requirements for imported light

oil and products will occur after 1995. In this case, large volumes of imported oil would be needed in Ontario. In the high price case ($27 U.S./Barrel by 1993) oil production from the frontiers becomes feasible so light oil imports are less than in the low price case. Provided that the resource potential were confirmed, we believe that small field development in the Newfoundland offshore using existent state-of-the-art floating production technology is close to being economic at current prices of $19 U.S./barrel and that by both the Government of Canada and the Government of Newfoundland and Labrador working together to encourage the pace of delineation drilling and preparatory engineering studies of these fields, we will have taken steps to assure lesser dependence in the future upon foreign sources of supply.

Upside recoverable resource potentials for each of the eight discoveries is listed below:

TABLE 1

Terra Nova	150 MMSTB
Whiterose	300 MMSTB
North Ben Nevis	150 MMSTB
Hebron	150 MMSTB
Ben Nevis	150 MMSTB
Fortune	150 MMSTB
South Tempest Complex	180 MMSTB
Nautilus	70 MMSTB

As stated, the translation of potential into reality can only be accomplished through further work and we acknowledge the Government of Canada's attempts to provide flexibility through the provision of

incentives in this regard. In terms of development, it is encouraging to note that if prices were to rise even halfway within the NEB forecast range, then these types of projects would probably never require public funding. It is our belief that oil produced from any of the fields mentioned, will turn out to be relatively cheap, and more importantly, from Canada's standpoint, available.

Before these discoveries can be exploited to help bridge the supply shortfall gap of the 1990's, reserves must be confirmed. Further delineation drilling is required before the opportunities can be realized. Lower prices have resulted in reduced cash flow for the industry and as a result the ability of the industry to act without assistance has been decreased. We remain confident that the Government of Canada stands ready to offer assistance, where it can, as part of its commitment to achievement of energy self-sufficiency as a policy objective. That objective which has guided the Federal Government's energy policy was originally set out by the Progressive Conservative Party caucus at Prince Albert in 1984 and reiterated in the policy document "Canada's Energy Frontiers - A Framework for Investment and Jobs."

Hibernia and its satellite fields can make substantial contributions to this goal of self-sufficiency and at the same time act as an insurance policy against future oil price blackmail - but there are premiums to be paid. The difficult questions remain. Will Canada be left in the 1990's without the ability to react to

large OPEC lead price increases because our own, "found in Canada" supplies are not yet ready to be produced? Will Canada's purchases of crude oil and petroleum products from foreign sources have seriously eroded our ability to generate a trade surplus and maintain the strength of our currency at that time? Will the key not have been placed in the 'engine of growth' if for no other reason than to have generated benefits and employment to dispel regional disparity? These are important considerations, but the fundamental one remains. Will we in the mid-1990's be paying OPEC more for oil than what it would cost had we developed our own domestic supplies? It must be remembered, of course, that from an international perspective, very few countries have even the ability to logically ask that question. Canada in other words is in the extremely enviable position of having the potential to meet its own needs, from its own supplies, unlike for instance, countries like Japan and West Germany. As a result of all of these considerations, and to offset the risk of substantial amounts of money flowing out of the country as a result of import requirements, Canada should now be looking with foresight to a very much accelerated development of its own domestic supplies. If prices rise, and almost all believe that they will, we will be applauded.

Certainly, one of the more difficult lessons of the past two decades has been that excessively low oil prices, leading to increased demand and decreased exploration, bring disruptions in supply that can prove damaging. We have become energy-complacent

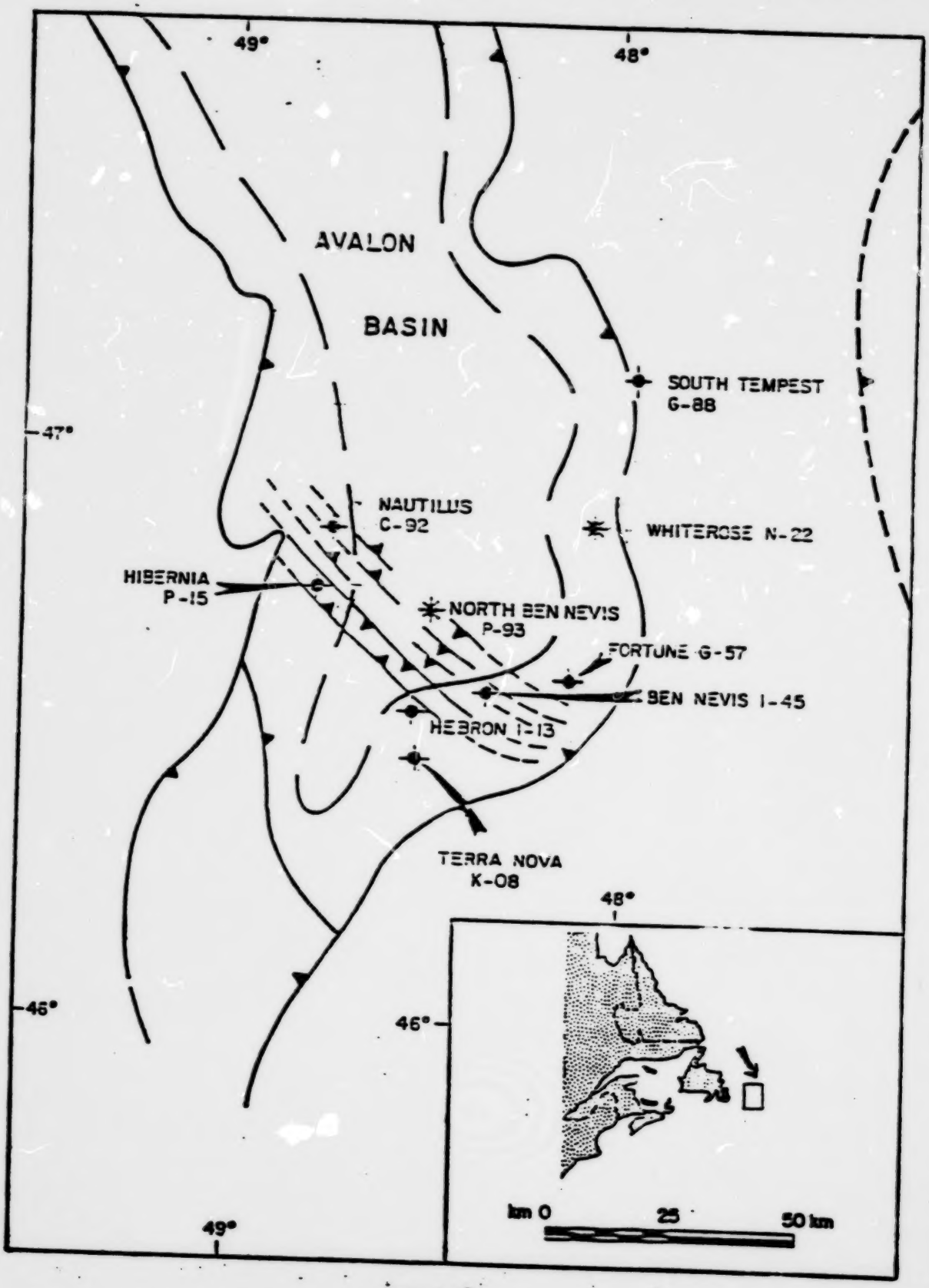
once again. The fact of the matter is that in the 10 years after the first oil price shock our ability to conserve strengthened but we are now dramatically losing interest and focus in this area. A shadow has not only been thrown over conservation and exploration projects because of the low price syndrome, but at the same time, and as a natural result, we are losing interest in the so-called energy mix programs like nuclear power, and research into alternatives to conventional oil. Spectacular discoveries like those made in the 1960's on a worldwide basis are no longer likely. Successful investments in the future will and should be channeled toward defining what we have; developing it and extending known oil deposits. This is one of the reasons why the North Sea area has not been as susceptible to the negative exploration effects of lower oil prices as have been both the over and under mature areas of Canada (ie., the Western Canadian Sedimentary Basin and the Frontier areas). Floating production systems consisting of semi-submersible units and shuttle tanker fleets are in use in several offshore areas of the world including the North Sea. Since the discovery of oil at Hibernia, all other discoveries made in the Northern Grand Banks (Avalon Basin) area are potential candidates for this type of development, because it appears at this stage, that reserve sizes may not support fixed gravity systems, at least for a single field development. Investments in floating production technology will provide economic, employment and industrial benefits to both Newfoundland and other areas of Canada. Furthermore, the technology development associated with operations in areas frequented by ice

will have further application in Canada's sovereign north. These are very important considerations for the Newfoundland Government and we look forward to working with our federal colleagues to encourage industry initiatives under this floating production system scenario. We believe that Newfoundland has an important contribution to make to the goal of security of supply through development of other fields, smaller than Hibernia, and we look forward to the opportunities that these types of developments will provide. Hibernia alone, at peak production during the 1990's will contribute at an average daily rate of 110,000 barrels of light oil per day, and conceivably up to 250,000 additional barrels per day is possible if all eight smaller fields were to be developed and placed on production during the same time. These volumes of production would of course go a long way towards filling the supply/demand shortfall expected during the 1990's. Furthermore it is apparent that an early start of the Hibernia development will add impetus, momentum and confidence that smaller field development will follow. In this sense, Hibernia will truly "break the ice" and unlock the door to smaller field exploitation.

The Newfoundland Government believes the security of supply goal to be entirely consistent with the goal of regional equality. Not only will the resource based provinces reap the benefits of energy developments like these but considerable economic benefits will surely accrue to the manufacturing based provinces, through the purchase of goods and services and through the manufacturing and

construction of various production system components. The threat of supply disruptions to the consuming provinces has to be viewed as a real possibility into the 1990's, if alternate supplies are not brought on stream. The conventional production from western Canadian sources, as has been shown in the recent NEB report on supply and demand, is in serious decline and furthermore, new reserve additions from that mature area will be insufficient to offset that decline in production. An increased dependence upon imports in the 1990's and beyond, due to lack of action now, will clearly place the central consuming provinces of Quebec and Ontario under the spectre of OPEC-lead embargoes, as already evidenced in the 1970's.

Newfoundland's future contribution to the goal of security of supply is clearly three-dimensional. So in this sense, we look forward to entering the 'second dimension' beyond the paramount Hibernia development, which will ultimately be manifested in further delineation drilling, leading to cost-effective exploitation of the one billion barrels plus thought to be contained in other discovered offshore Newfoundland oilfields. The determination of ways and means to ascertain if the additional undiscovered eight billion barrels of light crude oil, thought to exist in the Newfoundland offshore, is really there, represents the 'third dimension'.


49°
48°
AVALON
BASIN
SOUTH TEMPEST
G-88
47°
NAUTILUS
C-92
WHITEROSE N-22
HIBERNIA
P-15
NORTH BEN NEVIS
P-93
FORTUNE G-57
BEN NEVIS I-45
HEBRON I-13
TERRA NOVA
K-08
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46°
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25
50 km
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FIGURE